completed cycle of trade. The appropriateness of a range of eleven years is expounded in Chapter XIX, based upon the indications of physical phenomena and the concurrent appearance of the vicissitudes and crises of trading operations. In justification of his adoption of this particular term, Mr. Sauerbeck has shown that the period was marked by the ascent of prices to their highest elevation since the new discoveries of gold; that it comprised, further, some years of reduced prices; that its scope embraced four years of depression in trade, three years of advancing prices, and four years of diminished prices. He also ascertained that the average level furnished by Mie values of this term corresponded exactly with the average level of the twenty-five years from 1853 to 1877, so that a comparison of the aggregate average prices of all commodities in any given year with those of the eleven years from 1867 to 1877 is really equivalent to a comparison with the entire series of twenty-five years from 1853. It is an inevitable reflection that, owing to changes in the customs of trade, the altered preferences exhibited for certain forms of consumption, and any persistent variations of supply and demand, the standard of .prices fixed at one time as the origin of comparison may, after a lapse of years, require to be rescinded and a more modern and typical criterion substituted.

4. It will be observed that the prices employed in the construction of Index Numbers are wholesale prices exclusively; and hence, if an attempt be made to deal with the varying values of commodities consumed by classes of the public—"family budgets," as these inquiries are termed—the difficulty occurs that the prices so included must be retail prices, and modifications would require to be introduced—for example, the cost of distribution must be added.

5. The question has frequently been raised whether, in forming the summary Index Number for a group of commodities or for the entire mass of commodicies, the arithmetic

mean is the suitable process. Assume that b is the average price in the standard term of one article, and c its changed price in a future year (whether increased or reduced), while m and n are the corresponding prices of another commodity. The mean ratio of change by the use of the arithmetic mean